they are placed in the direction in which the panel changes form, they will require to exert less effort in accomplishing the object than in any other position. For the same reason, if the truss, after a lapse of time, shall have become permanently deflected, we have but to screw up the diagonals $b, b, b$, to secure entire adjustment. The manifest superiority of this system over others involving an adjustment through vertical members, is now apparent, since the best possible way to apply force to $b, b, b$, in order to shorten them, is in their own line of action, and if it becomes necessary, as in the Howe truss, for example, to shorten the vertical rods in order to effect the same result, much greater expenditure of force is required, and this accounts for the fact admitted by all practical bridge builders, that when a Howe truss becomes permanently deflected below the horizontal, expensive false works are necessary to effect a restoration. We shall have occasion to notice the truth of this observation in the discussion of some experiments upon models.

During the earlier consideration of some of the questions treated of in this paper, the writer was fortunate enough to secure the perusal of an ably-written analysis of four well-known iron bridges by Mr. C. Shaler Smith; and feeling that the conclusions therein arrived at would warrant a more extended range of favorable comparison for the Isometrical Truss, the Synopsis of Results (see Table III) has been transferred direct. And it is perhaps needless to add that Mr. Smith's well-established reputation is a sufficient guarantee for the correctness of results therein contained.